Pacific Ethanol, Inc.

Driven by Demand™

Sustainability Working Group

December 5, 2008

Pacific Ethanol, Inc.

Mission, Goals & Snapshot

MISSION

- Be the leading producer, marketer and distributor of low-carbon renewable fuels in the Western U.S.

SNAPSHOT

- 220 MGY corn ethanol production in 2008
- Produce and market nearly 2 million tons of wet distillers grains
- Awarded $24 million US DOE grant to develop cellulosic ethanol demonstration plant – integrate into all plants
- Headquarters in Sacramento, CA; offices in CA, CO& OR
- Publicly traded on NASDAQ GMS: PEIX

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Plants in Operation

Madera, CA

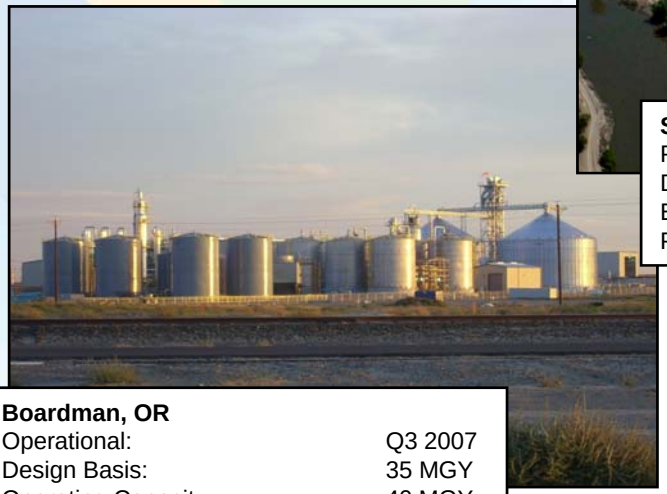
Operational:	Q4 2006
Design Basis:	35 MGY
Operating Capacity:	40 MGY
Process Engineer:	Delta-T

Stockton, CA

Planned Operational:	Q3 2008
Design Basis:	50 MGY
Expected Operating Capacity:	60 MGY
Process Engineer:	Delta-T

Front Range Energy – Windsor, CO

Operational:	Q2 2006
Design Basis:	40 MGY
Operating Capacity:	50 MGY
Process Engineer:	ICM



Boardman, OR

Operational:	Q3 2007
Design Basis:	35 MGY
Operating Capacity:	40 MGY
Process Engineer:	Delta-T

Burley, ID

Operational:	Q2 2008
Design Basis:	50 MGY
Operating Capacity:	60 MGY
Process Engineer:	Delta-T

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General Comments

- The draft Sustainability Goals and Characteristics are appropriate and workable.
- 10% GHG reductions is a good target but should not be a threshold for funding eligibility.
- CEC should consider preference criteria for “market-ready” projects with near term GHG benefits.
- Initial focus on “in-state production of bioenergy crops and biomass resources” could be problematic if it disqualifies projects that could improve the environmental performance of existing renewable fuel production in California.

"…controversy that has enveloped many bioenergy crops, such as Midwest corn…"

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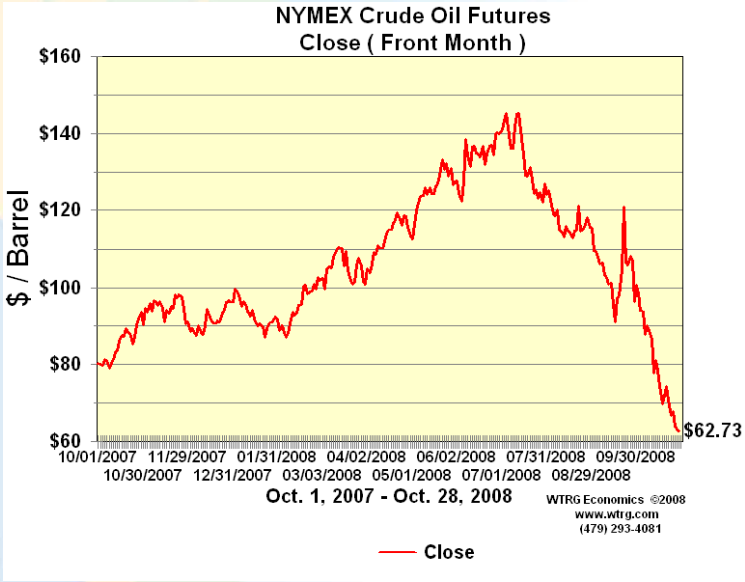
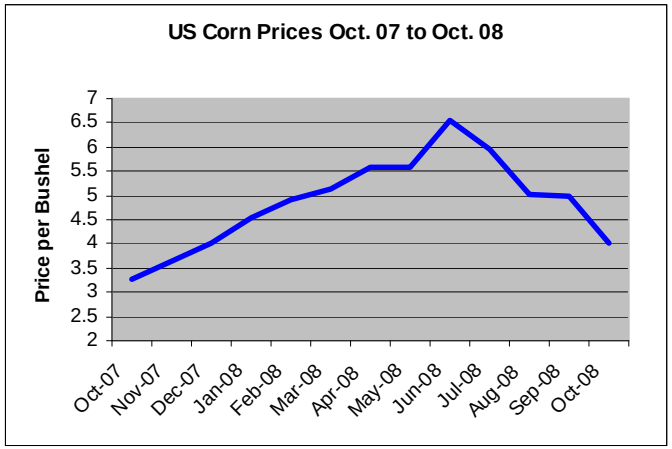
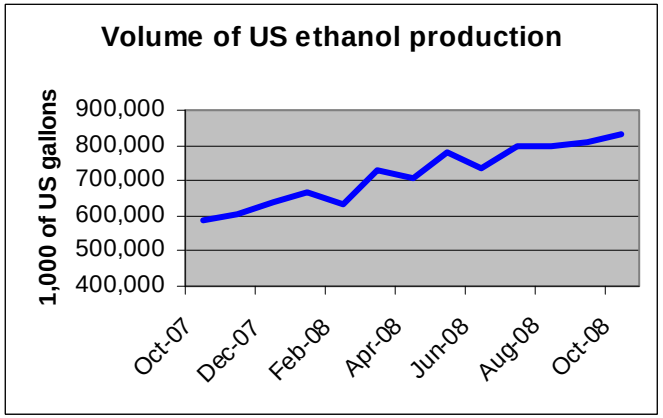
- The value of the Sustainability Framework is in allowing projects to live or die on the facts…

- Food Versus Fuel is a myth







Higher commodity prices, like corn, are driven by OIL prices, not ethanol production volumes.

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Ethanol Industry Rapidly Evolving

- Environmental footprint continues to improve
- Argonne National Laboratory Analysis
  - 2001-2006 - dramatic efficiency improvements
  - Water consumption – down 26.6%
  - Grid electricity use – down 15.7%
  - Total energy use – down 21.8%
- Fossil Fuel production on opposite trajectory
- Destination model – local marketing of fuel and feed even more sustainability benefits
  - Wet Distillers Grain – energy and transportation savings
  - California Investment and Jobs
  - Majority of corn is non-irrigated (87%)
- Today's corn ethanol producers are tomorrow's cellulosic ethanol producers.
- Investing in the efficiency/environmental performance improvements of 15 billion gallons of corn ethanol production critical to near term GHG emission reduction goals.

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Sustainability Goal 1 – Climate Change

Pacific Ethanol produces the lowest carbon renewable fuel in the marketplace today.

Fuel	Fuel production pathway	GREET
CA RFG	Marginal gallon produced in CA	92
Ethanol	Midwest corn ethanol from a natural gas-fired dry-mill	70
Ethanol	California corn from a gas-fired dry-mill, wetcake coproduct	52
Ethanol	Cellulosic ethanol from California poplar trees	- 12
Ethanol	Cellulosic ethanol from Midwest prairie grass	7
Ethanol	Cellulosic ethanol from municipal solid waste	5

Source: A Low-Carbon Fuel Standard for California, Part 1: Technical Analysis, May 29, 2007, Farrell, et.al.

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Sustainability Goal 1 – Climate Change

Indirect Land Use Change
Does NOT negate corn ethanol's GHG benefits*

Gasoline, Gasoline Blendstock, or Replacement	Definition	CI	Land Use Change Term[2]	Current CI Estimate
CARBOB	CARBOB in 2010	96.2	0	96.2
Low CI Ethanol	Derived from corn, maximize co-product value, improved efficiency, etc.	55.0	35	90.0

Source: Supporting Documentation for the Draft Regulation for the California Low Carbon Fuel Standard, CARB, October 2008

***Modeling to date underestimates grain yields and underestimates significant land use "credit" provided by distillers grains.**

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Sustainability Goals 2-4

- California Corn Ethanol Production can exceed thresholds for AB 118 Funding Eligibility and Achieve Sustainability Goals
  - PEI plants are subject to CEQA review and comply with all applicable laws, ordinances and regulations.
  - Much of the water used in ethanol production is given back as liquid feed for livestock, directly displacing water in livestock diets. Ethanol from corn is a net water-saver to the livestock industry.
  - PEI's Madera plant reuses 100% of its wastewater.
  - PEI's Stockton plant invested in state-of-the-art efficient lighting, motors, heat recover devices, insulation and other energy efficient technologies that will provide annual energy cost savings of approximately $1.3 million and reduce GHG emissions by 771 tons.
- However, Pacific Ethanol does NOT anticipate applying for AB118 funding for new corn ethanol plants.
- We see a major opportunity to use AB 118 funding to further improve the environmental performance of our existing plants and help bring cellulosic ethanol to the California market.

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Sustainability Framework – Project 1

- Efficiency improvements to increase yield and decrease BTU consumption—opportunities for “continuous improvement.”
- Pacific Ethanol is testing a reactor which may boost fermentation efficiency 10%.
  - Project cost: $10 million
- Similarly, other chemical, mechanical, yeast and enzime improvements which include some level of technology development could offer significant yield improvements for relatively low cost.
- Footprint ?? —small incremental increase in energy use – big yield improvement; no permitting issues.
- These types of projects should not be categorically denied because they are associated with a corn ethanol production plant.

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Sustainability Framework – Project 2

- Installation of solar panels at Pacific Ethanol plants.
- High capital cost: $7-10 million per MW of electricity.
- Appropriate use within plant footprint—rail loop.
- Opportunity to produce significant portion of electricity.
- Footprint ?? – displace up to 3 MW of grid power with 100% renewable energy; no land use, water, air emission issues.

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Sustainability Framework – Project 3

- Corn oil extraction
- Capital cost: $1-2 million for centrifuge and other equipment.
- Creates feedstock for biodiesel production—up to 1.5 million gallons of corn oil--more fuel from the same kernel of corn.
- Footprint ?? - “Waste” feedstock for biodiesel—90% conversion rate to bio.

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Sustainability Framework – Project 4

- Integrate Biomass Congeneration plant at Pacific Ethanol plants
- Capital cost: $15-20 million
- Replace 100% of natural gas use with wood waste, C&D debris
- Possible to sell excess power to grid
- Footprint ?? – sustainability of feedstocks, air emissions

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Sustainability Framework – Project 5

- Integrate cellulosic ethanol production into existing Pacific Ethanol plants
- $50 million capital project at Boardman to build first demonstration plant in the Northwest – wheat straw, corn stover, hybrid poplar residuals
- If demonstration is successful, AB 118 funds would be critical in developing cellulose production at scale in California (27 MGY)
- Footprint ?? – new water needs (higher than corn ethanol); feedstock supply and production

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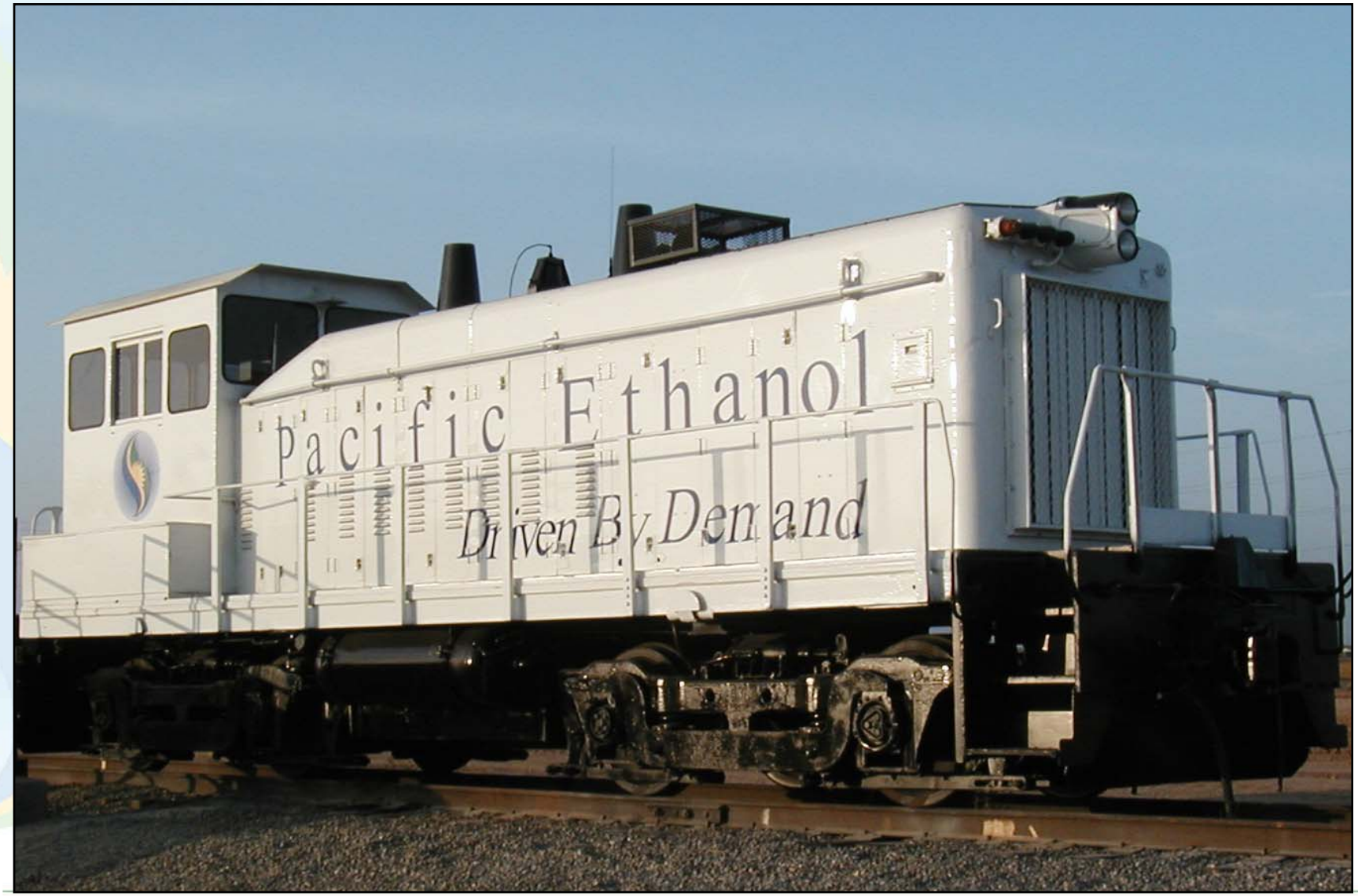
Closing Thoughts

- According to the Energy Information Administration, meeting global demand for transportation fuels in the next 25 years will require an additional 35 million barrels per day – the equivalent petroleum supply of more than three new Saudi Arabias.
- AB 118 funding is critical to help bring advanced biofuels to the market AND to help improve the environmental performance of conventional biofuels in the market today.
- The biofuels industry is dynamic and CEC should maintain maximum flexibility in the types of projects eligible for funding.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